

REMARKS

This Amendment is in response to the Office Action of February 3, 2003. In the Office Action, the Examiner indicated that Claims 1-42 are pending and Claims 1-42 are rejected. The Examiner objected to the Specification and Drawings, and acknowledged applicant's claim for domestic priority.

With this Amendment, Claim 29 is amended, corrections are made to the specification and drawings, and Claims 1-42 are submitted for reconsideration and allowance.

Priority

The Examiner indicated that applicant had not met the requirement for claims to priority from earlier-filed applications in the present continuation-in-part application, citing *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F. 3d 551, 32 USPQ 2d 1077 (Fed. Cir. 1994). The Examiner indicated that Claims 1-27 recited matter not disclosed in earlier applications 09/257,896 and 09/383,828. The Examiner also indicated that Claims 1-42 recited matter not disclosed in an earlier application 08/623,569.

Applicant notes that MPEP 201.08 Continuation-in-Part Application [R-1] provides:

Unless the filing date of the earlier nonprovisional application is actually needed, for example, in the case of an interference or to overcome a reference, there is no need for the Office to make a determination as to whether the requirement of 35 U.S.C. 120, that the earlier nonprovisional application discloses the invention of the second application in the manner provided by the first paragraph of 35 U.S.C. 112, is met and whether a substantial portion of all of the earlier nonprovisional application is repeated in the second application in a continuation-in-part situation. Accordingly, an alleged continuation-in-part application should be permitted to claim the benefit of the filing date of an earlier nonprovisional application if the alleged continuation-in-part application complies with the following formal

requirements of 35 U.S.C. 120:

(A) The first application and the alleged continuation-in-part application were filed with at least one common inventor;

(B) The alleged continuation-in-part application was "filed before the patenting or abandonment of or termination of proceedings on the first application or an application similarly entitled to the benefit of the filing date of the first application"; and

(C) The alleged continuation-in-part application "contains or is amended to contain a specific reference to the earlier filed application." (The specific reference may be in an application data sheet. See 37 CFR 1.76.)

It would appear that the present continuation-in-part application meets requirements (A) through (C) above and should be afforded the benefits of the claimed earlier filing dates for purposes of examination. In this Amendment, Applicant presents arguments that the presently pending claims define patentable subject matter over the art cited by the Examiner, even though certain items of art cited may not be prior art in view of the claimed domestic priority. Since applicant presently argues over the art cited, there does not appear to be any need to consider priority issues at the present stage of prosecution. Withdrawal of the objections to the priority claims in accordance with MPEP 201.08 is therefore requested.

Information Disclosure Statement

The Examiner declined consideration of reference "AF" of the 12/12/01 IDS because it is the instant application. The Examiner declined consideration of a reference "A1" of the 09/23/02 IDS because it is duplicate of a reference "F1" of a 12/12/01 IDS. Applicant does not object to these actions, and applicant withdraws citation of these two items.

The Examiner declined consideration of a reference "AO" (Improving Dynamic Performance of Temperature Sensors with Fuzzy Control Techniques, Wang Lei et al., pp. 872-873 Measurement and

Control, University of Essen (1992)) in the 12/12/01 IDS because no copy of this reference was received by the Examiner. With this Amendment, Applicant provides an additional IDS citing this reference along with a copy of the reference.

Drawings

The Examiner objected to the drawings because FIG. 6 includes a reference "656" not mentioned in the description.

With this Amendment, FIG. 6 is corrected to remove the reference "656". Withdrawal of the objection to the drawings is therefore requested.

Specification

The Examiner objected to the disclosure because, on page 6, line 16 the "pressure transmitter" is labeled "82" instead of "102" as it is labeled on page 6, line 29 and in FIG. 1.

With this Amendment, the disclosure is amended to recite pressure transmitter "102".

The Examiner objected to the disclosure because, on page 25, lines 18-19, "The level 1 coefficients" should be 'The "level 1" coefficients".'

With this Amendment, the disclosure is amended to recite the "level 1" coefficients.

Withdrawal of the objections to the disclosure is therefore requested.

Claim Rejections - 35 USC § 103

The Examiner rejected Claims 28, 29, and 31-35 under 35 U.S.C. 103(a) over U.S. 5,680,109 Lowe et al. in view of U.S. 5,340,271 Freeman et al, and U.S. 5,710,370 Shanahan et al.

Claim 29 is presently amended to recite "calculating a moving average of the measurement signal."

Claims 28, 29 and 31-35, as presently amended, recite

arrangements for flow diagnosis of primary elements or impulse line that provide a diagnostic output or report. In Claim 28, the diagnostic report is based on "calculating a difference between a pressure sensed by the pressure transmitter and a moving average of the sensed pressure." In Claim 29, as presently amended, and dependent Claims 31-35, the diagnostic output is based on "calculating a moving average of the measurement signal" and "comparing a baseline statistical parameter to the moving average."

Neither Lowe et al. nor Freeman et al. nor Shanahan et al. teach or suggest basing a flow diagnostic output or report on a moving average.

As reported in Dictionary of Science and Technology, page 761, Chambers Harrap Publishers Ltd. (1999), ISBN 0 550 14110 3, a "moving average" is defined as:

moving average (Stats) A procedure by which members of a sequence of observations are replaced by averages of series of consecutive members of the sequence, the series being symmetrical about, and including the member whose moving average is being calculated.

Neither Lowe et al. nor Freeman et al. nor Shanahan et al. teach or suggest basing a flow diagnostic output or report on a moving average. Neither Lowe et al. nor Freeman et al. nor Shanahan et al. teach or suggest basing a flow diagnostic output on consecutive members of a sequence where the series is symmetrical about and includes the member whose moving average is being calculated, which is a necessary feature of a moving average.

When a moving average of a real time series of pressure reading is calculated, in order for the moving average to be "symmetrical about the member whose moving average is being calculated," it is inherently necessary for storage (memory) to be present in order to store the member (pressure reading) until

after subsequent members (pressure readings) are completed to calculate a symmetrical average.

Lowe et al. does not teach or suggest use of a moving average and shows the use of ordinary high pass and low pass filters instead of a system that includes memory.

Freeman et al. does not teach or suggest use of a moving average and does not disclose memory. Freeman et al. tends to teach away from a "moving average" at column 5, lines 6-7: "each sensor signal is averaged with a plurality of immediately preceding sensor signals." A plurality of immediately preceding sensor signals is not "symmetrical about and including the member whose average is being calculated" as required for a moving average.

Shanahan et al. also does not teach or suggest use of a moving average and does not teach or suggest memory for storing the member whose average is being calculate.

In Claims 28, 29, 31-35, as presently presented, a "flow diagnostic system" provides memory for storage of the member whose moving average is being calculated so that it is available later, after a symmetrical average is calculated, for comparison or subtraction from the moving average.

Claims 28, 29, 31-35, as presently presented, are thus believed to be patentable over a combination of Lowe et al., Freeman et al. and Shanahan et al. Reconsideration and allowance of Claims 28, 29, 31-35, as presently presented, is therefore requested.

The Examiner rejected Claims 1, 2, 7, 8, 11-15, 18, 19, 22, and 23 under 35 U.S.C. 103(a) over Lowe in view of Freeman and Shanahan and further in view of UK Patent No. 2 342 453 to Keech.

Claim 1, as well as Claims 2, 7, 8, 11-15, 18, 19, 22, and 23 that depend from Claim 1, include a limitation to "a first algorithm calculating a difference between the pressure data and

a moving average of the pressure data."

As discussed above, Lowe et al., Freeman et al. and Shanahan et al. do not teach or suggest a moving average. Keech also does not teach or suggest use of a moving average. Claim 1 is therefore believed to be patentable. The dependent claims 2, 7, 8, 11-15, 18, 19, 22 are also believed to be patentable in combination with the limitation to a moving average in Claim 1. Reconsideration and allowance of Claims 1, 2, 7, 8, 11-15, 18, 19, 22 is therefore requested.

The Examiner rejected Claims 3-6 and 9 under 35 U.S.C. 103(a) over Lowe in view of Freeman, Shanahan, and Keech and further in view of U.S. Patent Publication No. 2002/0145568 to Winter.

As discussed above, Lowe et al., Freeman et al., Shanahan et al. and Keech do not teach or suggest a moving average. Winter also does not teach or suggest use of moving average.

The dependent claims 3-6, 9 are believed to be patentable in combination with the limitation to a moving average in Claim 1. Reconsideration and allowance of Claims 3-6, 9 is therefore requested.

The Examiner rejected Claim 10 under 35 U.S.C. 103(a) over Lowe in view of Freeman, Shanahan, and Keech and further in view of U.S. Patent No. 4,926,364 to Brotherton.

As discussed above, Lowe et al., Freeman et al., Shanahan et al. and Keech do not teach or suggest a moving average. Brotherton also does not teach or suggest use of moving average. The "DAU Stat Refresher" mentions a concept referred to as "weighted moving average" but does not discuss a moving average, and in particular does not deal with the symmetrical aspect of the moving average and does not teach or suggest application of a moving average in a flow diagnostic system as presently claimed.

The dependent Claim 10 is believed to be patentable in combination with the limitation to a moving average in Claim 1. Reconsideration and allowance of Claim 10 is therefore requested.

The Examiner rejected Claims 16 and 17 under 35 U.S.C. 103(a) over Lowe in view of Freeman, Shanahan, and Keech and further in view of U.S. Patent No. 5,790,413 to Bartusiak et al.

As discussed above, Lowe et al., Freeman et al., Shanahan et al. and Keech do not teach or suggest a moving average. Bartusiak et al. also does not teach or suggest use of moving average.

The dependent Claim 16 and 17 are believed to be patentable in combination with the limitation to a moving average in Claim 1. Reconsideration and allowance of Claims 16 and 17 is therefore requested.

The Examiner rejected Claims 20, 21, and 24 under 35 U.S.C. 103(a) over Lowe in view of Freeman, Shanahan, and Keech and further in view of U.S. Patent No. 5,495,769 to Broden et al.

As discussed above, Lowe et al., Freeman et al., Shanahan et al. and Keech do not teach or suggest a moving average. Broden et al. also does not teach or suggest use of moving average.

The dependent Claims 20, 21 and 24 are believed to be patentable in combination with the limitation to a moving average in Claim 1. Reconsideration and allowance of Claims 20, 21 and 24 is therefore requested.

The Examiner rejected Claims 25-27 under 35 U.S.C. 103(a) over Lowe in view of Freeman, Shanahan, and Keech and further in view of JP Patent No. 08-114638 to Nagashima.

As discussed above, Lowe et al., Freeman et al., Shanahan et al. and Keech do not teach or suggest a moving average. Nagashima also does not teach or suggest use of moving average.

The dependent Claims 25-27 are believed to be patentable in

combination with the limitation to a moving average in Claim 1. Reconsideration and allowance of Claim 25-27 is therefore requested.

The Examiner rejected Claims 30 and 36 under 35 U.S.C. 103(a) over Lowe in view of Freeman and Shanahan and further in view of U.S. Patent No. 6,119,529 to Di Marco et al.

As discussed above, Lowe et al., Freeman et al. and Shanahan et al. do not teach or suggest a moving average. Di Marco et al. also does not teach or suggest use of moving average.

The dependent Claim 30 and 36 are believed to be patentable in combination with the limitation to a moving average in Claim 29. Reconsideration and allowance of Claims 30 and 36 is therefore requested.

The Examiner rejected Claims 37-39 under 35 U.S.C. 103(a) over Lowe in view of Freeman, Shanahan, and Keech and further in view of U.S. 5,828,567 Eryurek et al.

As discussed above, Lowe et al., Freeman et al., Shanahan et al. and Keech do not teach or suggest a moving average. Eryurek et al. also does not teach or suggest use of moving average.

The dependent Claims 37-39 are believed to be patentable in combination with the limitation to a moving average in Claim 1. Reconsideration and allowance of Claims 37-39 are therefore requested.

The Examiner rejected Claims 40-42 under 35 U.S.C. 103(a) over Lowe in view of Freeman and Shanahan and further in view of U.S. Patent No. 5,828,567 to Eryurek et al.

As discussed above, Lowe et al., Freeman et al., Shanahan et al. and Keech do not teach or suggest a moving average. Eryurek et al. also does not teach or suggest use of moving average.

The dependent Claims 40-42 are believed to be patentable in

combination with the limitation to a moving average in Claim 29. Reconsideration and allowance of Claim 40-42 is therefore requested.

Conclusion

The cited art has been considered and the present Claims are believed to be patentable over such art. In the invention, as presently claimed in Claims 1-42, a flow diagnostic system and method are disclosed that diagnose a primary flow element or impulse lines through the subtraction or comparison of a moving average of pressure readings to a reference. The art cited by the Examiner does not teach or suggest a flow diagnostic system that uses a moving average.

The moving average used in the present invention is a procedure by which members of a sequence of pressure measurements are replaced by averages of series of consecutive members of the sequence of pressure measurements, the series being symmetrical about, and including the pressure measurement whose moving average is being calculated. The moving average of each pressure reading takes into account noise which occurs both before, during and after the pressure reading has been taken. The symmetrical averaging arrangement provides an improved averaging of noise in the form of a moving average of a pressure reading.

The Application appears to be in condition for allowance and favorable action is requested.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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